Volume 5 1963-1964

STATE OF ALASKA

William A. Egan, Governor

ANNUAL REPORT OF PROGRESS, 1963 - 1964

FEDERAL AID IN FISH RESTORATION PROJECT F-5-R-5

SPORT FISH INVESTIGATIONS OF ALASKA

ALASKA DEPARTMENT OF FISH AND GAME
Walter Kirkness, Commissioner

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INTRODUCTION

This report of progress consists of Job Segment Reports from the State of Alaska Federal Aid in Fish Restoration Project F-5-R-5, "Sport Fish Investigations of Alaska."

The project is composed of 25 separate studies designed to evaluate the various aspects of the State's recreational fishery resources. Of these, eight jobs are designed to continue the cataloging and inventory of the numerous State waters in an attempt to prepare an index of the recreational waters. Four jobs are designed for specific sport fishery creel census while the remainder of the jobs are more specific in nature. These include independent studies on king salmon, silver salmon, grayling, Dolly Varden, a statewide access evaluation program, egg take program and a residual toxaphene study. The information gathered from the combined studies will provide the necessary background data for a better understanding of local management problems and assist in the development of future investigational studies.

The subject matter contained within these reports is often fragmentary in nature. The findings may not be conclusive and the interpretations contained therein are subject to re-evaluation as the work progresses.

Volume 5 Report No. 3-B

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

STATE: ALASKA Name: Sport Fish Investigations of Alaska.

Project No: F-5-R-5 Title: Investigation of Anadromous Dolly Varden Populations in the Lake Eva-Hanus Bay Drainages, Southeastern Alaska.

Job No: 3-B

Period Covered: March 1, 1963 through March 1, 1964.

Abstract:

Two major phases of the Dolly Varden's life history, the migration habits, and age and growth, were investigated at Eva Lake. The migration phase of the investigation was analysed by Mr. Robert Armstrong for a Master's thesis at the University of Washington. The age and growth data is being compiled by Mr. David Heiser for a Master's thesis at Humboldt College. This work will be published in the Alaska Department of Fish and Game Research Report series and will not be reported on at this time.

Recommendations:

An examination of the data collected to date has shown that almost a complete void of knowledge exists regarding the spawning habits and requirements of the Dolly Varden. For this reason it is recommended that a thorough study be conducted in the following manner:

1. From the number of Dolly Varden entering Eva Lake it should be determined what per cent are going to spawn in the system. Daily random samples taken from the weir traps should be examined for sexual maturity. Length, weight, sex and degree of maturity should be recorded for all fish, ovary weights and egg diameters should be recorded from a suitable per cent of the female fish. In addition a weir should be installed in the major inlet to Eva Lake (Wahine Creek) and similar sampling procedures conducted at this site.

2. Approximately 10,000 in-migrant Dolly Varden over 250 millimeters in fork length should be tagged with Peterson disc tags at the Eva Creek

weir. The tags should be consecutively numbered and color coded by time periods. The tagging should be done on a daily basis based on a random percentage sample of the total number of Dolly Varden over 250 millimeters obtained in the weir traps. This should facilitate observations on the spawning ground and yield information on timing between the Eva Creek and Wahine Creek weirs.

3. Fecundity determinations should be made from samples collected at the Eva Creek and Wahine Creek weirs and from the spawning grounds.

4. Once the spawning areas are located, observations should be made on spawning behavior, ratios of color coded disc tags and sex ratios.

5. The physical, chemical and biological data collected at the spawning sites should include gravel sampling, substrata oxygen determination, water chemistry, water temperature, egg pumping and flow measurements during and after spawning activity.

Objectives:

To measure and evaluate anadromous Dolly Varden populations in the Lake Eva lake-stream system.

To determine the extent, timing, purpose and patterns of Dolly Varden migrations from and to this type drainage.

To determine seasonal growth rates of anadromous Dolly Varden utilizing this type drainage.

To determine the spawning habits and requirements, and fry rearing habits and requirements.

To determine the out-migrant fry populations of all species from this system.

To determine utilization of Lake Eva marked fish to other water systems adjacent to the study area.

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Job Leader:

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Fishery Biologist

Date: August 14, 1964

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